

DRAGON USER



The independent Dragon magazine

December 1985

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Communication

Send us your questions, send them your answers.

Take command

The last and final part of the Osborne and Compaq Machine/Code Quest ... first time around.

Dragon Soft

New utilities from Quoserver and Knechtel; music and games from Maristair; re-view of Ninja Warrior, by special request. Gerdien Banest from Smithson, Shack, home!

LHEX

Malcolm Cowan provides a flex dump command with a Welsh accent.

The Story of C

Brian Cudge looks at a language which is gaining ground in industry.

Basic 42

Poy Coates reviews the new system software and utilities from Harris Micro Software.

Shuffle Word

P. Matson plays musical anagrams in the first of a pair of word-wobbling games.

ArCADE Arena

Read the Expert's Christmas wants list first ... then you can read the super games/poke list. Plus a map of Fantasy Fight.

Joystick

A small hardware conversion to bring switching action to Dragon-compatible joysticks.

Disc to Tape

Peter Whitaker demonstrates how to save disc programs onto tape and save costly storage space.

Adventure Trail

Mike Garand reviews new adventure software from readers and writers.

Competition

Out on the tiles for starters, but finish by crossing Santa with a Snowman to make a perfect square. Well, almost ...

Editorial

First, let me say that this month, The Dragon trading nation has been saving up its pennies for Christmas, with the result that our advertisers are back in force this month. I hope you lot have been saving your pennies for an extra game or two to make their effort worthwhile. So, you get first of a game in the end? So donate it to Mr. Osborne. Well, disc drives like his, he needs something he can play on tape ...

The Royal Horticultural Halls in London, Wexham of the micro-micro (as I write, the Micro-micros are gathering for their annual show), is host to Microdeal and the 1985 Show on 22 November. Be grateful that these special engagements in York, or you could find me there with a tray of backlinks, Dragons, Dragons, lovely Dragons, get your Dragons here.

I have half a dozen July 86 issues here in the office, £1.25 each, first come, first served. We may subsequently have news on where you can get good copies of this early. Sorry, I can't tell you where they came from ... nobody seems to know.

The tooth fairy?

One of our good suggestions may not be back in the Dragon market next year. See if you can spot which one, and send me a Christmas card, because they've done well by the old machine. And a happy Christmas to you all if I don't see you till after the holidays ...

How to submit articles

The quality of the material we can publish in Dragon User each month will, to a very great extent, depend on the quality of the discoveries that you can make with your Dragon. The Dragon computer was launched on to the market with a powerful version of Basic, but with very poor documentation.

Articles which are submitted to Dragon User for publication should not be more than 2000 words long. All submissions should be typed. Please leave wide margins and a double space between each line. Programs should, whenever possible, be computer printed on plain white paper and be accompanied by a tape of the program.

An instant guarantee to return every submitted article or program, so please keep a copy if you want to have your program returned you must include a stamped address-envelope.

Telephone number
(All departments)
437-4343

Editor
HELEN ARMSTRONG

Production Editor
BARBARA HUGH

Associate Editor
JOHN COOK

Editorial Secretary
ARNE MARIE O'DRIVER

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Subscriptions
UK: 044 for 12 issues

Overseas: 044 for 120 for 12 issues

044 for 0000-0000-0000-0000

Dragon User: 1203 Little Newport Street,
London WC2H 9PP

US address: via Business Press International,
308 East 42nd St, New York, NY 10017

Published by Best Press Ltd
© Best Press 1985

Typesetting and Production by Amest Limited,
London W6H

Printed by Heston, Epsom (UK), Ashford, Kent
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Letters

This is the chance to air your views — send your tips, compliments and complaints to Letters Page, Dragon User, 12-13 Little Newport Street, London WC2N 7PP.

Computer program

I ACCIDENTALLY discovered that it is possible to turn an ordinary VHF radio and hear the Dragon programming. If you place the radio (tuned in to any space between broadcasting stations and run) programs, you will hear definite signals (loading, entering, processing data, displaying the results and waiting for an input) all produce different sounds. I wonder if it would be possible to tune an intercom or a speaker to receive the broadcast!

Paul Scott
15 Hyde Court
St. Thomas St.
Ayles
Essex

PS Why do advertising packages and packing rates vary so much? How can one company justify £3 for posting a cartridge while another charges 75p or 50p or nothing at all?

COULD BE handy if you're making coffee in the kitchen, Paul. But are you sure you weren't just picking up one of

them? There's a lot of right! R&P charges often incorporate other overheads associated with running a mail order service, which is why big companies sometimes seem to make disproportionate charges for small packages. That, and the well-known loss aversion effect.

Win and load

MY name is in support of Mr O'Malley in his request for the solutions of the competitions to be published. I frequently attempt the competitions but often fail to reach a conclusion. It would be interesting to know the methods which the winners use. As for what should be left out, well, I have never seen use of charts so I would not be sorry to see them. People's Choice.

Another way of saving space lies in the area of machine code programs. Every machine code program is accompanied by a loader program. Regular readers (and we must all be

regular readers now) must have written such programs or at least feasibility tests themselves, so why not drop them? Alternatively, print one program that can be adapted to different line lengths and give notice that no more will be published.

G. Maltman
14 Hawthorn Way
Rogate
Herts SG8 5JP

WELL, we're working on it — it's now partly down to Godwin's, a hard working chap who made us do, finding the time to write a full note for us each month. However, as the winners are judged on their elegance, it won't always be the winning line who get the governor's scrutiny — as much can be learned from looking at the less well-tanned programs as from the 'best' ones.

Secondly, it's a fundamental of all technical publishing below professional level that articles are self-contained. You wouldn't believe the number of letters we get from people looking for a 'loader' program of one sort or another. Don't be tempted, Mr Maltman.

offered modification to the program.

David Gray
875 Ashton Road
Widnesborough
Cambridgeshire
Cambridge, CB3 9BE

Free pokes

I HAVE just finished compiling two A4 sheets containing jokes and cheats for Dragon games. They are designed as quick reference sheets so that you can easily find the poke you need without searching through your collection of Dragon Users looking for the right month. There are 55 games covered, including The Dark Pit, Jet Set Willy, Music Mirror, Shock Trooper and many others which have never been printed.

If any DU readers would like copies of these sheets then I'll be happy to supply them if they send me a stamped self-addressed envelope, plus £2.00 to cover the cost of photocopying.

Paul Burgh
18A Moorcroft Road
Southsea, Portsmouth, PO5 2GS

THANKS, Paul. When sending come through the post, tape yourself down to the paper and wrap at least two sheets round them. Loose coins have a way of leaving envelopes en route.

Any CAD?

IT IS fascinating to see that DU has been able to run four extra pages. I rely on the magazine to keep me up to date with the latest in computing forward to its monthly appearance, but look forward to long-term survival.

My children use the Dragon for games, while I mostly use it for preparing technical papers, lectures, etc. A very useful extension for me would be the ability to use it for drawing in Computer Aided Design. The problem here is that there no longer seem to be people willing to produce CAD programs for the Dragon — could you consider an article which reviews the CAD software available for the C62 and C64?

M. L. Monaghan
18 Dorchester
St. Dunstons
Stoke-on-Trent, Staffordshire
West Midlands B4 4DZ

Tape head tales

COMPLIMENT: October edition is out and get.

Suggestion: too hopefully most Dragon users with cassette based media storage suffer the dreaded 80/100 syndrome, but for those who do, try adjusting the head azimuth of the tape recorder. Check manual 'Yes, it's a bit fiddly. Use the Audio Co and Motor Drive commands to take to the tape through the TVAudio output, and using a jeweller's screwdriver, adjust the azimuth by turning the screw located behind the Play head. This is normally accessible through a tiny hole in the top case. After adjusting the head for maximum volume and sharpness of sound, the tape should load OK. If your other tapes then refuse to load, simply repeat the process, using one of your previously tested program tapes.

Questions: anyone tried the Ramsey trick to get switchable normalisation video on the CoCo to see if it works on the Dragon? Anyone got a non-working DOS cartridge for sale? Or a cheap working one? (Mind it is non-user DOS.)

Warning: I have a Sanyo DCR10 data recorder, out of guarantee, well used, expensive — three crass errors every 10s to load with it. When the problem started happening (only occasionally at first) I thought it was the Progress terminal, caused by wear in the plastic crass headguide (pin it).

Paul Wood
7 Farnley Avenue
Milestone
Leicester LE18 3AQ

WINDA, hold on, just one moment... call Sanyo Mainland on 0920 45083 before you lose your investment, ask for the Service department, and you will find that they can either sell you a replacement part (if you are able to fit it) or quote you for a repair. Let's be fair, you would wear out too if someone was dragging a length of non-impregnated plastic across you for hours on end.

For postal enquiries, Sanyo's address is: Orlinwood Way, Watford, Herts WD2 7WD.

Magic puzzle

I RECENTLY found tucking on the local micro-shop shelves a DragonDOS version of Spite Magic. I'm disappointed it would not run with DragonDOS version 4. Investigating the problem, I found the header word list and function list addresses and the address of word and function display tables were different from those expected by Spite Magic.

Using a backup copy (provided precaution in the event of a mistake) I found the following method overcame the problem:

```
CLASH:200AH-0000  
PROTECT OFF  
"SACCODE:00"  
LOAD "SACCODE:00"  
POKE SHIPF00AH-00  
POKE SHIPF0AH-01  
POKE SHIPF0AH-00  
SAVE  
"SACCODE:00"SHIPF0AH-FFFFA  
H0000
```

I assume that CumanaDOS and SUPERDOS users will face the same problem but will require a

Dragon User People's Chart

JINGLE BELLS! Jingle bells! The pantomime season must be here again, because Bean Stalker, from Micro Vision, has clearly been applying some strongstuff to its roots and has shot up to the top slot. Luck out for falling toilet rolls...

What about all this new stuff, then? We were going to announce grandly that it all these hardworking software writers out there worked their fingers just a little nearer to the bone, if the avalanche hit us in time for Christmas, we should see some new names in the Chart. Well, we can't speak, can we? Four new reviews down the plug to oblivion. When Jason rang to say he'd had a crash, we thought he must have fallen down the stairs, but it was worse than that...

But afraid to lead? We have the X Factor! A bit of a narrow squeak, to be sure, but it's gone and done it. Mr. Robin Harrington of Brighton, Leicester sends us this to breakers: "It just read Part II". Alas, it is not to be — but he should be getting some freemans' fees.

Vote! Vote! Send in the form printed here, or encopy with your five favourite proggs, and if you send us a knee-knocking letter we made up from the letters for some of 'em of your own top three, you could win £25 worth of games software from MICRODEAL.

Results November 1986

- 1 Bean Stalker.....(Micro Vision)
- 2 Juxtaposition..... (Winterson)
- 3 Shaolin Master.....(Quickbeam)
- 4 Shocktrooper.....(Microdeal)
- 5 Jet Set Willy.....(Software Projects)

Chart Ten

Voting for Chart No. 10 closes at 1pm on Friday, 12th December 1986. Entries received after that time will not be eligible for inclusion in that month's voting. The editor's decision is final. Only one entry per individual per month will be allowed.

My top 5: Voting Month 10

	Name
1	Address
2
3
4
5

My phrase is:

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SMITHSON-COMPUTING, 24-25AL HILL, GREEN, BRANLEY, LEEDS, L23 3DP. Tel: 0532 884071.

0207

Analyzer corrections

Two authors of analyzer have contacted us with corrections for two errors concerned with the ice input command.

The altered lines, to replace the lines with the corresponding numbers in the listings, are as follows:

```
10 POKESH+D-GOSUB1
RETURN
80 Z=VAL(MB/TSQ(T-1.2)
IFC=GOSUB20NEXT
RETURN
114 F$AM)="ANDSHM)=-
ANDSHM)=-ANDSHM)=-
INDESM)=-ANDSHM)=-
ANDSHM)=-ANDSHM)=-
ANDSHM)=-ANDSHM)=-
T+SHM+SH-GOTOF4
120 IF(X)=R THEN(X)=
LEI+1
121 NEXTFORX=TOF4FM
(X) IF(T+SHM)=SH+D
134 NEXT GOSUB20
135 IF(X) THENRETURNEL
SEMD(TSX,T+1.2) IF(T
GOTOF2+1.2) RETURN
```

Monsters

Monster Alley is a multi-screen arcade game which runs under (and only under) Sprite Magic. Players are required to collect keys while avoiding monsters, and a built-in cheat mode occupies the last screen.

The game costs £2 from K. Hunt, 11 Desborough Close, West Brompton, SW6 6R. The first 20 orders will receive a free adventure with a Sprite Magic is not on sale with the game.

Apology

Quite inadvertently, Dragon User, The Expert and reader David Barclay combined to give the impression that the map of Juddaposition on page 38 was Mr. Barclay's own work. The map was in fact originally supplied by Wintersoft, a point not made sufficiently clear by Mr. Barclay, who simply wanted to share his good feelings for other readers. In answer to The Expert, he says: "Please could you stress that I only sent it in for the readers, and give the credit to Wintersoft, as I

don't want to get a badname for myself." Dragon User and Mr. Barclay would like to apologise to all concerned for the misunderstanding.

Incentive move

Incentive Software, known to Dragon users for Moon Cresta, have appointed an International Sales Manager, Phil Ingram, and a Design/Programmer, Chris Andrew. This expansion is accompanied by a move to bigger premises at 2 Minerva House, Calverly Park, Aldermaston, Berks RG7 4QW.

More joy

Kosic, makers of the smooth, fast and also very exclusive Speed King joystick, have announced that production has finally caught up with demand by upping their capacity from 3,000 a week last January to 50,000 a week right now.

Since the Speed King was launched many prospective customers have either had a long wait, or been unable to lay hands on the device at all. Now it should be freely available from computer dealers.

As well as the Dragon 32, the Speed King is compatible with most other micros, including many of the Amstrad models. It

costs £12.95. For more information (and mail order) contact Kosic at Unit 12-14, Gateway Hill Industrial Estate, Tredogan, Gwyn NP23 4QZ.

Harris update

Harris Micro Software's BASIC42 (reviewed in this issue) has now been updated to work correctly with 'patched' versions of DragonDOS as well as Eurohard versions 4.0 and 4.1. The Eurohard compatible version is designated as BASIC42.100E to cope with different locations in the Eurohard DOS.



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News desk

If you have any new products for the Dragon — software or hardware — ring the News Desk on 01-437 4343

Packet radio

Granovier Software have launched a major new product for radio amateurs with Dragon 3264s or Tandy Color Computers. Known as the AR25 system, the makers say that this is the finest software solution to AR25 packet radio developed in the UK for any computer.

Packet radio uses a radio transmitter and a computer to utilise either AR25 radio stations as 'dispositives' (digital repeaters) to send signals for greater distances than could otherwise be achieved. With

satellites such as the Japanese JARE-1 (already in orbit) and PACSAT (to be launched soon) reliable world wide contact at 1200 baud, using amateur power VHF transmitters is already a reality. The AR25 package contains complete error-checking, without retransmission where needed, and can also be used on HF where the standard is 300 Baud.

A packet radio Terminal/Network Controller costs around £200 — the AR25 system, written by Mike Reilly G4BMR, makes this fully allowing a Dragon to be used alongside a conventional modem which, as it is not hooked into the

telephone system, does not have to be BT approved.

The software comes on ROM cartridge or disc, and supports 300 and 1200 Baud operation. Six contacts can take place at once, with text for contact selectable on the display with full scrolling even in conversation. The transparent apiece allows the transfer of text files and programs. Up to eight register stations can be specified.

A complete package with ROM software and a 1200 Baud VHF modem is available for £39. The software alone costs £19, and an HF modem adaptor will be available shortly.

Tandy computers need extended Basic and 32k minimum RAM to operate.

Granovier, who specialise in amateur radio software, also have packages available for RTTY, ASCII, Morse and Airtel receive and transmit, and GSVT receiving. Up to three programs can be supplied on one cartridge.

Customers should state their computer model and if they have one) settings when ordering. Orders to Granovier Software, 2 Beacon Close, Seaford, East Sussex BN25 2JZ. Please send an SAE for further information about any of their programs, or phone (0323) 863378.

Your own THiNGi

HOW many THiNGi's to a THiNG? The ones — the British creators of the THiNGi are richer by £5000 and a step on the back after winning the Business Idea of the Year award for their brainchild Overbase Ltd., the happy company call the THiNGi. The greatest contribution to information handling since the paperclip.

The THiNGi is actually a first single line device based on Velcro and a building clip for holding type copy exactly on a level with a VDU. The attraction is that the copy is upright, next to the screen, and won't blow away when the door opens. It

solves, claim the makers, neck, back and eye strain, and improves accuracy and typing speed. And people won't put their coffee mugs down your copy ever again.

Quick to attach and fully adjustable, the THiNGi looks like a cheap solution to copy holding, as well as a convenient and versatile one. It's available in left and right hand versions, and can also be customised with the name of a studio company for presentation and fund raising.

THiNGi costs £5.99 plus VAT and p&p — for further information contact Overbase Ltd. on 051 647 5591.

Business books

Answerguide for small business managers who buying their first computer systems has been published by the author, Eini Muirhead, Professor of Organisational Behaviour at Manchester Business School.

The 70 page book, Using Computers for Business Success, explains in straightforward, step by step terms how to analyse business needs before choosing hardware and software, how to organise the business environment and job specialisations to make the best use of new technology.

The book is available from Manchester Business School, Booth St. West, Manchester M15 6PL, and costs £8. Professor Muirhead is the developer of the ETHICS method (Ethical

Technical and Human Implementation of Computer-based Systems), and has written this and five other titles (all setting up systems for working environments, based on this method. In 1983 she was awarded a gold medal for her contribution to information science.

NDUG

The National Dragon Users Group is still going strong. Their newsletter, Dragon Update, appears monthly with articles, reviews and technical tips. For more information contact the Chairman, Paul Grede, c/o Navarino Road, Worthing, Sussex.



SEASONS GREETINGS

The staff, publishers and contributors of Dragon User wish all our loyal readers and our commercial supporters a happy Christmas and a prosperous Dragon year in 1987.

The sceptics said that the Dragon couldn't survive, but they're mistaken without the machine's own sterling qualities, which has kept an enthusiastic bunch of users alive. Long may it continue!

Disaster

Dragon User was intending to run several guest reviews in this issue, including Microsoft's Tanglevist, and Cambridge's 88000 Express and People's Charter regular Shazlin Master. Unfortunately, our reviewer's disc drive went down at the wrong moment, leaving him to rewrite approximately 30 pages of typed copy. The missing reviews should be back in place next month.

Communication

Send in your questions, requests, and pleas to Communication, Dragon User, 12-13 Little Newport Street, London WC2.

Problem: Can you tell me if there is a way to read and load a disk in DragonDOS format with the Premier DeltaDOS because I want to make a backup of such a disk? Is there a way to use the Dragon in MS mode with the Premier DeltaDOS?

Enquirer: Eric de Plessens, 33 Rue Bakkerella, 1208 Brussels, Belgium.

Problem: I want to use my Dragon 32 to communicate via a MIDI link with a Roland TR-707 drum machine. I want to use a 6850 A/D converter to know what function each of the pins in the cartridge port do. Also, I am writing a machine code program to play Cthells and I would be grateful for the address of routines which perform arithmetic (including EXPG) and where to put the operands.

Enquirer: Paul Etchells, 28 Pinnerfields Road, Walsfield WF1 3ND.

Problem: Does anyone know how to correct the speech chip SP050AAL 2 to the Dragon's printer port? I can't get it working.

Enquirer: Hank Bender, Doornikstraat 1, 3286AA Vlaarsum (The Netherlands).

Problem: I require a text editor for the CDS operating system, to use with the Pascal compiler, or can anyone tell me how to prepare to edit Pascal files and programs?

Enquirer: Mr. A. Durand, 11 Heaton Park Road, West Yorkshire BC8 5QA.

Problem: I can't get in touch with Steve Gatterboise — has anyone got a copy or whole listing of S&P&B by Garton.

Also from Personal Computer News 1983?

Enquirer: Philip Callaghan, 51 Penistone Road, Moss P8, Sheffield S11 9BY.

Problem: Help and advice wanted on hacking programs etc., how to discover codes for changing program details.

Enquirer: A. M. Burton, 58 Riverstone Road, South Benfleet, Essex SS67 1LT.

Problem: I am in desperate need of an instruction booklet for the TEHTSDM. Do you know where I can purchase one, or any of the readers of your magazine? I would willingly pay for it if necessary.

Enquirer: Mr. P. A. Hall, 60 Serry Road, Heathway, Dagenham, Essex RM6 6JL.

Problem: Wanted: Stylograph word processor. Also, does anyone have a screen dump for the EPSON P40 printer?

Enquirer: J. Boyle, 18 Inchmurem Crescent, Balloch, Argyllshire S83 4LL, Scotland.

Enquirer: Mrs. L. Fitzgerald, 82 Langdon St., Shawton, Sheffield S11 9SL.

Communication

Black for a routine? Need some obscure equipment? Feeling out of? Fear not — someone, somewhere can help you! Write down your problem on the coupon below (make it as brief and legible as possible) together with your name and address and send it to Communication, Dragon User, 12-13 Little Newport Street, London WC2H 7PP. We'll publish it as soon as we can — meanwhile, maybe there's someone you can help this month!

Problem

.....

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.....

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Take command

The last part — for now — of Orbaum and Campbell's machine code tutor

ACTUALLY, although we've called this the last part of the machine code epic, what it actually represents is the termination of the first part of the series. If you held on for a bit, you may get another part.

Yes, requests ask you for a list of every command you will need to program simple machine code, complete with an explanation, in fairly complex terms, of what each command does. The explanations should be no problem if you have taken in all the other articles in this series.

Finally though, note that any assembler file must begin with an `OPRS` command.

This tells the assembler at which place in memory the assembled code is to be put. This area of memory must be cleared before use. Therefore, if your program begins with the command `ORG 20000` (which is where we place most of our code), then (before assembling) one should type `CLEAR 200, 99999` to clear the memory.

To assign labels storage areas the commands `FCB`, `PCC`, and `PCB` are used. For example, if one wishes to use a location to store cursor position then the command `CURSOR FCB 0` will set up a double (hence, the `D`) precision location at the ad-

dress assigned to this line on assembly. `PCC` allows entry of text to be converted for use in data tables for an adventure. More details on assembler directives can be found in the manuals of most good assemblers.

Now, the table (please note that this does not contain the branch instructions as they have already been covered in *Intermediate*). `ADD` adds into register specified after command; memory location specified after register, is `ADD A:0400` adds the contents of memory location 0400 into A, `ADD 05400` adds 05400 into D. Works with A, B, and D. `AND` `A:0`, `H`, `N`, `Z`, `V`, & `C` flags in `CC`.

AND: Logically ANDs B bit register specified with memory location storing result into B register, is `AND A:0400` logically ANDs A with the contents of location 0400 while `AND B:1234` logically ANDs B with the number 1234 thus clearing the top bit of B. Affects `H` & `Z`, clearing `V` in `CC` flag.

ARL: Arithmetic shift right: shifts all bits in specified register one bit to the right thus multiplying register by two. A zero goes into bit zero while bit seven goes into `C` in `CC`.

ASL: Arithmetic shift left: shifts all bits in specified register one bit to the left thus dividing by two. Bit zero goes into `C` of `CC` while bit 7 remains the same.

CLR: Sets an 8 bit register or memory location to zero. Clears `H`, `V`, & `C`, and sets `Z` in `CC`.

CMP: Compares two values, a register and a memory address, does not affect either value, simply affects `CC` bits `H`, `Z`, `V`, and `C`.

DEC: Subtracts one from specified 8 bit register or memory address.

EXR: Logically exclusive ORs a register with a memory location storing the result in the register.

EXG: Exchanges the values in any two registers of like size.

INC: Adds one to the content of any eight bit register or memory address.

JMP: Jumps to a given address.

JSR: Jumps to subroutine.

LDR: Loads a register from a memory address with a value (through the last of 1).

LEA: Used for addition and subtraction within A & Y for simple programming, is `LEAX 1,X` will add three to X. `LEAY -1,Y` will subtract 14 from Y and `LEAR 0,X` will take the value of D as a two's complement number and add or subtract from X accordingly.

NEG: Negates an eight bit register or a memory address.

NOG: No operation. Does absolutely nothing.

OR: Logically ORs register with memory location storing the result in register.

POP: Pops registers onto stack (pushed on S or U).

ROL: Rotate a specified register left. All bits in named register go one bit left, bit zero takes carry and bit seven is bit 0. Therefore to shift all of register D left one must clear the carry, then `ROLB`, `ROLA`.

ROPR: As `ROL`, only rotates eight.

RTS: Return from subroutine.

ST: Store specified register at specified memory location.

SUB: Subtract contents of memory location from register.

TFR: Copy the contents of specified register into second specified register. Registers must be of like size.

TST: Tests a specified register or memory location to see if it is zero. Sets `H` & `Z` flags in `CC`.

And there you have it. The end of Part One. Hopefully if you start playing around with the commands you now know them by the time Part Two gets here you should find it really easy! Happy coding.

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CMS

Postman in cross-channel cheek shock!!

Program: Disk Support Tool
1.8, 1.6
Supplier: Bernd Knechtel
Software, Arnold-Weihen-
Str. 5, 5830 Remscheid 11,
West Germany
Price: £7 + 12p/d

ANOTHER disc doctor/utility type program, this time from West German Bernd Knechtel Software, for the Dragon with DragonDOS. Two versions of the program are available: version 1.6 is for DragonDOS 1.6 to 1.3, and version 1.8 is for DragonDOS 4.0 (Grosser's FGM). In terms of options, both programs are identical.

I first ran a pre-production version of this program some months ago (it was called Disk Doctor' then). Since then, Knechtel has added a few new options and removed a couple of completely useless ones. So, for software which has been so long in development, which do you get?

A completely menu driven, very user-friendly (almost) touch-sensitive suite of utilities called by BOOTING the disc. The first option allows a disc to be formatted - nothing very special in that, except that it will also put a loading utility on the disc which allows a program to be loaded and the DOS then shut down; useful for programs like Telemeter.

The second option is a file backup program which can also be used on a Dragon 32s if you are lucky enough to have working 64k RAM chips fitted (these were on the later Dragon models). Single drive users can use this option to backup a disc with only eight sectors.

Similar to Backup is the third option, 'Filecopy'. Rather than copy the disc sector by sector, it copies a file by file. This allows you to append files to a disc from another, or backup a disc with some bad sectors.

A primer directory can be output using the next option, including information on start, length and entry addresses for machine code programs. Of course, from Basic a minimal directory listing can be output by typing `POKE 81294:DIR`.

Option 5 is called 'Rewrite', and reads in each sector before writing it back out to the

disc. The manual says it is 'to detect and fix the contents of the disc: unless you believe that ...

The 'Rename' option allows files to be renamed as a Basic, but also allows the infamous 'not named' file to be renamed.

More useful for single drive owners is option 7, 'Single Drive Copy'. This works the same as the DragonDOS COPY command, but with a single-disc system - copying individual files between discs.

The backup directory option simply copies track 30 (the directory) to track 16 (the backup directory). This is very simple to do from Basic, using `SAVE/BACKUP`.

The majority of directory errors are caused by 'GC' (cyclic redundancy) errors on the directory track, so an option to

copy the backup directory to track 30 would have been useful. Unfortunately, the nearest you get is exchange directories - which does the job, but fails if either track cannot be read.

Finally, option 10 allows you to access Basic and DragonDOS commands (or some of them), such as `CREATE, KILL, PRINT` etc.

Overall, there are a few useful options available in this software, such as the `FORMAT/LOAD` utility and the single-drive file copy. There are also a lot of utilities which can easily be done in one line of Basic, such as the directory backup-copy and the directory print.

I mentioned earlier that the program is very user friendly which is useful to begin with.

but tedious when you have to confirm that you want to execute a particular option several times over.

Originally, this software was priced at £15, which, it seems, even Knechtel has now realised is too high. At half the price, it is worth considering, but there are a lot of other disk utilities around which offer comparable or better features. Knechtel states in the manual that if you get a faulty disc, then return it with a postal order for £3 to get a replacement. What a cheek!

(A supplier who supplies faulty goods should replace them free of any charge, including post and packing - Editor.)

Brian Dudge



Full support and no bugs, either

Program: SuperDOS disc controller ROM
Supplier: Grosvenor Software, 2 Beacon Close, Seaford, E. Sussex BN45 1JZ.
Price: From £88 plus p&p (see advertisements).

GROSVENOR Software come up with apt names for their software, and their new SuperDOS disc cartridge ROM chip again lives up to its name. Apart from the riddance of all bugs known to Grosvenor through their intimate knowledge of DragonDOS and errors reported in the pages of Dragon User, this DragonDOS compatible chip is FULLY SUPPORTED - that alone makes it worth its weight in gold, so it is superb value at £10. The removal of the PE error made it a particularly worthwhile investment for me (I knew that DragonDOS 4.0 removed this bug, but I couldn't stand its DIR session and couldn't boot up DOS either...). Being fully supported, I threw in a few faults that had come across that had not been corrected in early SuperDOS issues, and I now have for the first time what I consider to be a totally error free DOS - and many of you must know what a bashing I give my system.

Why should you use SuperDOS? Everyone with a Dragon Data or Cumana disc controller. Cumana DOS users will lose the COPY utility, but that is a minor loss compared with what will be gained. DragonDOS 4.0 users will still be taking important steps towards a DOS still riddled with bugs. Grosvenor offer a cheap fitting service for those not wishing to dabble inside their controllers themselves.

I now have for the first time what I consider to be a totally error free DOS...

Is it really DragonDOS compatible? If you have enhanced from DragonDOS 1.0 to 4.0, you will know that the 'lead address' parameter of the machine code 'SAVE' statement has been corrected to match the originally intended cassette 'CSAVE' so that programs containing such a 'SAVE' command will need to

have a byte lopped off that parameter (only actually necessary if the additional byte does affect operation when the file is released). Otherwise, all software that references the DOS using Basic commands or the 'jump table' will run without modification. Early versions of Disk Telemeter will need an upgrade (free) from Microdeal to the version that uses only 'standard' DOS calls and Smithson Computing's Electronic Author (version 2.0) needs a 2 byte patch for its DIR facility to work with SuperDOS. Any other compatibility problems will be investigated as advised to Grosvenor Software.

Should you be considering investing in a disc system, include the cost of SuperDOS in the evaluation - PMP Controllers come fitted with SuperDOS - as what is the point of having a faulty engine in a Rolls Royce of a disc system? That, unfortunately, unlike some other home micros, is what we have got with the Dragon. Give your disc system a treat - give it a super-duper SuperDOS.

Pam Dobry



LHEX

Malcolm Cowan bows to QS-9 and provides a dump command for Flex

USEF66 of CGS will know the DUMP command which prints out a file in ASCII and as printable characters. The listing printed here gives a Flex version of DUMP which was originally developed for IBM's version of the CDS1 User Group.

I called the program LHMEX (partly because it stands for List Hm, which has a more sense than DUMF) and partly because I just liked the sound of it. You can pronounce it any way you like. I see it as if it were the LL sound in Llandudno. (I assume Martin can pronounce Llandudno, seeing as he lives there.)

The program takes one parameter, such as a filename. For example:

LABOR CONTRACT

will list the file `1.FREDICAL`,
`FILE:1.FREDICAL`,
which will instruct the printer, as is usual for
the `lpr` command.

As it stands, the program assumes an 80-character output, as on most printers, and on the Compuserve Plus video board. If you want a different size of output line, that can be arranged quite easily by altering the `len` block.

Abstract

1. **THEORY**

These define the number of bytes to be output per line. Since each byte takes up four characters on the printline, plus the two spaces between the hex part of the line and the ASCII part, you will see that channels

The best values of 'TR' to read 'T2' would make the subject feel quite well on a 50-minute session.

To compile the program, copy the source given into a file called `LINEC.TXT`, then enter the command

1000

which will create a file called `LNEN.BAT`. This will need to be copied to your system drive and renamed `LNEN.COM`, so that `FLSH` will recognise it as a new command.

The listing is abbreviated. Should anyone be confused by the word "JMP", let me explain that this is an abbreviation for "JUMP". I picked it up from writing lots of operating system for ICL some years ago, and found it is useful lot of shorthand.

[illegible]

The Story of C

Brian Cadge looks at the language which came after B

THE 'C' language is fast growing in popularity into the commercial programming scene — slowly gaining ground against the likes of Cobol and Basic. Although a general purpose language, C is most at home in the Systems Programming environment with its control flow, data structures and low level access. It is not a very 'high level' language, in fact it includes very few 'built-in' commands; most are implemented as library functions, but more on this later.

The history of C starts with the new system used language BCPL written by Martin Richards. In 1970, Ken Thompson developed the language B from BCPL. Both BCPL and B were 'typical' languages — that is there were no distinctions between variable types (char, int, integer, pointer etc). The only data type was a machine byte or word. B has now passed on and is not used at all in the commercial programming world. From these two languages Dennis Ritchie developed the 'C' programming language almost as we know it today.

Due to a clearly defined standard, C is a very portable language, it is not tied to any particular hardware or processor. Originally it was designed for the DEC PDP-11 running the UNIX operating system. UNIX itself has since been rewritten in C and other well known operating systems are now written in C, for example GEM as found on the Atari 520.

Object code

C provides basic operators and functions to handle the low level data types found on most computers, i.e. characters (bytes), integers (words), and pointers (addresses). In addition, floating point is also part of the standard. Most processors include facilities for directly manipulating some or all of the above data types (the 6808 handles all but f.p.) directly by hardware so C can produce efficient, compact object code.

There are no built in operations to handle strings, arrays or other data types and all variables must be declared at compile time — there is no heap allocation as in languages such as Pascal. There are not even any built in commands for I/O.

The advantages of this compact language are that it is easy to define, easy to learn and easy to implement on different machines. All of the 'missing' features are provided as functions which can be called as if they were in fact built-in commands.

For the purposes of this article I used the Microvare COB-C Compiler kindly supplied by John Peen Software. As an example of a complete (if very simple) C program,

take a look at figure one. This shows a program called 'PIAD' which will search an ASCII file and display any line which contains a specified string.

The program starts with some comment lines which are always enclosed in '/*' and '*/' in C. Next come the compiler directives, which always begin with the '#' symbol. The '#include' directive tells the compiler to include the main file (in this case 'stdio.h') at that point in the compilation. There can be any number of '#include's in a program, 'stdio.h' is always included as it defines certain standard I/O characteristics of the system. If you write a useful function which is often used it is worth putting in a .h file to be included in other programs.

No constants

C does not support 'constants' as found in languages such as Pascal. The nearest you get is compile time substitution using the '#define' command. This tells the compiler to replace the first string with the second throughout the program text. So any occurrences of TRUE will be replaced with '1' and FALSE with '0'. You may have guessed that C does not support boolean variables either — any non-zero value is deemed TRUE.

Variable scopes, as discussed in some detail in the Pascal article, are supported at two levels, global and local variable. Any global variables would be defined before the definition of the first function. There must always be a function called 'main' in any program as it is this function that is first called when the program is run. Indeed not, however, have to be the first function defined in the program. Any parameters are given in the brackets after the function name, these brackets are always present so if a function is parameterless one would type 'main()'. Functions may return values using the 'return' value; 'comand', many functions do not however return values and therefore act simply as procedures.

The parameter types are defined immediately before the body of the function. The basic types are int, char, float, double etc. Pointers to (addresses of) types are denoted by including a '*' before the variable name. For example, to define a variable 'letter' as a character you would use the form 'char letter; and to define a variable 'string' as a pointer to a character you would use 'char *string; this is how strings are defined in C — as pointers to the first or an array of characters.

Arrays are defined using square brackets. So 'char string[66];' defines a 'string' array of 66 characters (numbered 0-65). In implementation terms, 'string' is defined as a pointer, so the form

'X=string[62];' would take the address of 'string' and added 62 to it and return to it value found at that address — it is therefore identical to typing 'X = *(string+62)' which is indeed quite legal.

Types such as 'FILE' in the program are composite types made up of a number of elements and are defined in the file 'stdio.h' — these will vary with different implementations of the language and so are given the name FILE in all implementations to maintain portability.

The variables 'argc' and 'argv' are special and contain the number of arguments passed and a list of pointers to these arguments when the command is executed. So typing the command 'PIAD test' will would cause 'argc' to have a value of 2 and 'argv[0]' to point to 'PIAD', 'argv[1]' to point to 'test' and 'argv[2]' to point to 'null'.

The commands such as 'printf', 'gets' and 'scanf' are not built into C they are implemented as functions and are to be found on all standard implementations.

All parameters are passed to functions by value, not by address as it is not possible to permanently change the value of a parameter within a function (unless you pass a pointer to the value as the argument). Functions can be called recursively with a new 'set' of local variables being generated each time.

Most variables are 'static' variables — that is they are stored in normal memory known to the compiler. There are also variables called 'automatic' variables which are stored (if possible) in a hardware register for increased speed.

The C 'structure' is the main building block for data structures and may be compared to the Pascal 'Record'. A structure is defined in C as follows:

```
struct birthday  
{  
    char name[40];  
    char date[17];  
    int age;  
    int DOB;  
};
```

This defines a structure type 'birthday' consisting of the named elements and defines 'list' as an array of 50 of these structures. A particular element is accessed in a similar way to Pascal, using 'list[i].date' etc. The DS-8-C Compiler used for this article is worth looking at in more detail here. To use it you will need a 68K Dragon, OS-9 Operating System, and at least two disk drives. In addition, you will need some sort of text editor to prepare the ASCII source code files — Ekygraph is ideal for this purpose.

The compiler is supplied on two disks both of which must be present in the drives



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FIGURE 1 - A Simple C program

```
/*      FIND.C - This program lists the lines of a file
           which contain the string prompted for.
*/

#include <stdio.h>
#define TRUE 1
#define FALSE 0

main(argc,argv)
int argc;
char *argv[];

{
FILE *fp;
int line;
char search[80],string[256];

if (argc != 2)
{
fprintf(stderr,"Usage: FIND pathname\n");
exit(1);
}
fp=fopen(argv[1],"r");
if (fp==NULL)
{
fprintf(stderr,"Cannot open file %s\n",argv[1]);
exit(1);
}
printf("FIND 1.0\nEnter Search String: ");
gets(search);
if (strlen(search)==0) exit(1);

line=0;
while (fgets(string,255,fp))
{
line++;
if (findstr(1,string,search))
{
printf("%5d is %s\n",line,string);
} /* end while loop */
fclose(fp);
} /* end main */
```

for a program to be compiled. Executable OS-9 executables are the output from the compiler. If this mode is requested — only routines used within the program are actually included in the routine code produced.

Split compiler

Due to memory limitations, the compiler has been split into two passes for OS-9 level one and so can take quite a long time to compile even a simple program. Even with the two pass restriction the compiler, therefore, not enough RAM left to run the 80 column screen editor using the compiler, although compiled programs can of course use the screen.

The compiler supports almost all of the standard UNIX system calls, including 'fork()' for parallel process running. All of the features of OS-9 are available through the system calls which make this compiler a very powerful systems language for any serious OS-9 programmer.

The error reporting and recovery seem quite powerful and all error messages are usually self explanatory.

A potentially very useful section of the manual deals with the linking of program modules written in other languages, particularly BASIC-68, to C code. Therefore, it will not be necessary to scrap all of your favourite routines written in BASIC-68 in order to move up to C.

Once again it has only been possible to give a very brief overview of the 'C' language, but enough I hope to encourage you to look further at this programmer's language.

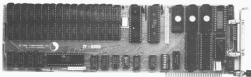
System Used: Microware OS-9-C Compiler

Requires: 64K (Dragon), Dual Drives, OS-9 Operating System and Text Editor.

Supplier: John Fenn Software, Dean Farm Cottage, Kingsley, Borden, Hants GU35 9WQ (Tel: 04203 5997).

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Basic 42

Harris Micro Software's new package reviewed by Ron Coates

The Dragon's on-screen text display is only 32 x 16 upper case characters, is underlined, very poor and outdated by just about any other term machine on the market today, making the machine unsuitable for displaying more than the most basic information. Even the simplest word processor requires a display beyond the capabilities of the Dragon as we know it. The answer has always been to use the hi-res graphics screen and 'draw' each character as required. This is a reasonable solution until you try to scroll the screen for listings or use standard Dragon facilities such as `PRINT` or `RS`.

A basic rule of thumb says that the home rule of tomorrow is the business micro of today. A look at today's business machines will reveal windows, pull down menus and lots of other clever goodies, all normally beyond the Dragon.

Good news

Well, having depressed every Dragon owner south of the North pole, the good news has come from Harris Micro in the form of a package for hi-res owners running DragonDOS called BASIC42.

The BASIC42 package is probably the best step so far towards alleviating these problems without losing compatibility with existing software. BASIC42 is not simply another hi-res text utility but as described in the accompanying manual is the central core of an operation system which will help bring the Dragon up to date. The package comes on disc and simply requires the `BOOT` command to bring it to life with a hi-res screen displaying the usual copyright message and an OK prompt.

BASIC42 copies both the BASIC operating system AND the DOS software to `RAM` where it can be loaded, very 'clever' if suit the user's requirements. This is achieved by using the Dragon's memory map type 1, which configures the Dragon to be 64 glorious 64K of wonderful `RAM`, not a byte of `ROM` in sight! Because the entire system is now in `RAM`, the BASIC42 software is loaded into memory above the DragonDOS software and so does not deprive BASIC of a single precious byte.

Having booted the BASIC42 system and looked at the usual 32 column lines display, it looks like many other hi-res utilities, but a few minutes experimenting reveals that this is probably the latest hi-res screen driver written for the Dragon, and turning pages in the manual reveals all sorts of well thought out additions to the normal system. In fact there are so many features of the BASIC42 system it would have been far easier to simply reprint the manual. The character set, being in `RAM`, may be changed to one of several supplied on the system disc by simply issuing the command `USE "FRRNCH.SBT"` or alter-

natively, an entire character set may be created or edited using the supplied program `DPANCH.RS`.

No more fiddling

A major improvement in the use of this system is the ability to enter commands in either upper or lower case characters, which means no more fiddling about with that tortoise `SHFT` combination which I am sure has broken all of us at some time or another. All keys now have an auto repeat feature which may be disabled or altered by simply going to a few memory locations specified in the manual. Unlike many other hi-res drivers, it is very easy to revert back to the normal display by using the command `TEXT`, and back again to the hi-res display using the command `hi-res`. Simple, eh?

It is nice to see that this driver has been very neatly interfaced with the rest of the Dragon's operating system and pressing the `PGDN` button shows that as the display remains quite happy in the hi-res mode with the cursor patiently flashing away.

Probably one of the most important features of BASIC42 is its support of the new highly fashionable 'windows'. There are a total of ten separate windows available to the user, eight of which may be easily re-defined by the user through the `FRAME` command to suit any particular application. For the uninitiated, a window is a section of the screen which may be used as a completely separate screen in its own right and which may be created and scrolled without affecting the rest of the screen. This feature is perfect for the programming of pull-down menus, etc. Windows 0 and 9 are not re-definable by the user, since window 0 is the whole screen and window 9 is a special screen that has its own memory in order that it will not destroy what was on the screen in that area before the window was called.

Cursor positioning and character highlighting have been included in this package in the form of simple commands such as `ROW`, `COLUMN` and `UNDERLINE` with cursor position reporting being available through commands such as `HEIPCO` and `COLPCO` which return the current line and column of the cursor. The state of the current window may also be interrogated with the `HEIGHT` and `WIDTH` commands. A rather clever command `CATCH` allows you to access one window while actually being in another, a useful example of this being given in the manual. This shows how a basic program may be run in one window with any error messages appearing in the other, very useful when debugging a program.

The operating system itself is only very small in terms of memory usage, and so there is an area of some 35K available in which to load utility programs. No doubt more off-line utilities will become available

from Harris Micro as time goes by, but there are two immediately available, `HELP` and `SPOOL`.

The `HELP` utility allows the user to change easily features of the BASIC42 system such as the auto repeat speeds, setting of control keys and the screen scroll mechanism. The enabling or disabling of the `HELP` utility `HELP` also provides a much improved `TRON` utility which re-defines the line number printed by the `TRON` instruction to the top right hand corner of the current window so that normal output from a program is not corrupted and the `PAUSE` command enables a program or listing to be used in 'single-step' mode, so that the effect of each line can be decided before continuing. `HELP` also provides a standard error messages so no more funny error messages like "TBC error in line 100" is added to the confusion! While installed in memory, the `HELP` utility will also file details of the commands and functions of BASIC42.

The other utility, `SPOOL`, the other utility, `SPOOL`, I had to say it twice if I hope that caught you for out an ear—`ED` / `CO` I didn't believe it at first! At long last someone has sat down and written a printer spooler for the best old Dragon. Although a decent commercial printer spooler buffer will have between 64K and 128K of buffer memory, this is used by `SPOOL` in 100% better than the standard system. As soon as there is less than 35K of data to be printed, the Dragon is once again available for use while the `SPOOL` utility looks after the printer. Any print job may be aborted by simply typing `SPOOL OFF` (now there's a new insult for you).

Software range

For the Dragon-loving business user, the extra goodness is that the Harris range of business software (`MSBIBYED`, `CASHBOOK` etc.) will all work with BASIC42, providing that a patch program `ROMPATCH` is used, giving far better screen displays. Unfortunately, I have not seen these programs running and so cannot say just how improved they are.

In conclusion, BASIC42 transforms the Dragon into a decent system for use by small businesses or basic users.

For the effect this package has on the Dragon it is well worth the asking price and the utilities are certainly well priced at £100 when you consider that on average a blank disc cost between £1 and £2. I sincerely hope that this system will get the recognition it deserves.

Program: BASIC42
Supplier: Harris Micro Software
Price: £14.95. Utilities £3 each.

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Expert's Arcade Arena

Write to "The Expert" at Dragon User
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with all your arcade tips and finds.

YES, it's that time of year again, when treefrogs gladden, and children learn, to have the sleighs in the snow. Yes, it's novelty song time, it's ceaseless adverts for Transformers (robots in disguise) time, it's compilations and Bond film time, it's getting far too drunk and pinging out on far too many bolts (for meen forken — Zet!), it's all people freezing to death in their unheated council houses while you get Austin Healeystatueoford perfume the size of a pea for fifty quid, it's a time of trying to work out just how much money you're going to get so you can make a profit by spending less than that amount on everybody else. Yes, it's Capitalist Christmas time (actually, you'll probably be reading this in November when you won't even have started to worry about the number of "Muppets-day" left).

And so, in the true Christmas spirit (that of the pressure of receiving, before I give you all my presents, here's a list of gifts I'd like to receive from various people out there.... Some of them are rather silly, but you'll notice that there's a list of Games at the beginning. These are games that I don't possess myself and which cannot really be much about, so if anyone has one they really can't stand any longer (or just want to suck up to me), I suggest they donate it to your trifle.

THE EXPERT'S CHRISTMAS LIST

A car sticker with "I don't even want a Porsche" written on it.

A vast sum of money (bigger than any of you possess so don't bother with this one). A time-share flat in Nicaragua.

No more letters in stupid luminous pen (especially you, Andrew Holgers).

Copies of: *Adam Alias*, *Classic Cruise*, *Cave Fighter*, *Durley Monkey*, *Death Mirror of Sirius*, *Delicate Raiders*, *Hissax Does Sing*, *Invader's Revenge*, *Mindboggler*, *Monstrous Chess*, *Quadrants*, *Sea Dragon*, and *Space Raiders*.

More maps (often are I going to get one of *Arco's Kingdom*).

More of those sort of letters that say "I wish your column was 30 pages long".

More of those letters that come with a big bottle of gin with them.

More of those letters that come with millions of cigarettes.

In fact, send anything you can lay hands on!

A "PRIZE" (of the usual Arcade Arena standard) will be sent to the person who sends the most stupid present in the above address! (Oh dam. And I was going to demand a percentage. Ed.)

Now, here's my presents for you. Firstly, the rather splendid "Fantasy Fight" map drawn by M. Northwick (who suggests that I am in fact "The great blue winter Assassin of Asia" — Completely wrong, so no prizes there).

Secondly, the great **POKE LIST**

ASTRO BLAST Colour 2187

BEASTALKER: Access, code is REGISTER, answer NO to tape, go back to

main screen, hold down X/ENTER to go to editor, ClearR to go to next screen, ClearR to increase lives, Colour 2770, Reset 2781.

BUBBLE BLUSTERS: Once tuning a game press reset then play again and bubble fall is over.

BUFFZARD BAIT: Poke 1090, SHES to get PAK003 SCREEN 10, CS/DEM "9022440": 7168, 3275, 7168 *** No songs required on re-load *** Reset 3380.

BEAMRIDER: Crash with RESET POKE 7765, LIVES or POKE 1842, 10 for infinite lives, EXEC 7865.

CANNERS OF CHAO: FIGHT when playing "R" to next screen, Colour 26603, Lives 26665 (Zero for infinite).

Colour: Poke this location to 2240232040348 to give Green 4 colour/ball 4 colour/Green & Black/White & Black.

COSMIC CRUISER: Lives 6098, Zero to infinite.

CURBER: Lives 10454, Reset 28481.

CUTTHROAT IN THE COOLER: Lives 6825 (up to 14).

CHAMBERS: Lives 133336.

CAVE FIGHTER: Lives 27076 (zero equals infinite).

CRAZY PRINTER: Let space invader reach the bottom, when past reaches zero leave it and you have an infinite supply.

DURLEY MONKEY: Lives 15280, Colour 16662.

GARK PIT: Pause game, press DEL/RC. Use cursors and Enter to select a screen, position man same way and repeat. Lives 7032.

GUNGION RAID: Press "C" to continue on screen you just finished on.

DANGER RAMMER: Lives 12642.

DEATH MINES OF SIRUS: Codes are 0000 & TLL.

DECAPI: Code is 7036.

EDDIE STEADY GO: Lives 27182.

FEARLESS FREDDIE: Lives 36052, Reset 23662.

GALACTIC RAIDERS: Lives 19664.

HUNGRY HORACE: Stay on park ball, lives and score soon mount up. Guardian's get you when you're both in the tunnel.

HORACE GOES SKIING: Colour 26366.

ICE CASTLES: Go into tunnel on screen one on first go, jump, then giving yourself 140000 points and getting onto a level somewhere between 30 and 30. Lives 18166, Colour 13071, Reset 12266.

INVADERS' REVENGE: Lives 14716.

Reset 16371.

JET SET WILLY: While game is in progress press keys MAX together, this through screen with cursors, press again, position Willy (score 60), press space to continue.

JET BOOT COLUM: Colour 7326, Reset 12036, infinite lives POKE 8764, 77 POKE 8999, 77.

THE KING: SKIPP: CLOAKIN: FOR X:16950 to 12694: PRMT X: POKE X:256: NEXT X: EXEC This gives hundreds of lives!

LUNAR POWER PROCOL: Lives 641026.

MUPHES: Colour 22962.

MANIC MINOR: PENGUIN to get boat, Colour 12826, Lives 12146 (up to 25).

MOON HOPPER: Colour 12627.

MORRISON CHESSE: Crash with reset, then, POKE 8401, 254: EXEC 7706. Improves colour drastically.

NINJA WARRIOR: Lives 9469.

PLANET INVADION: Lives 9436.

PEGO: Use SKIPP: SKIPP: CLOAKIN to load then any of: Seeds — 23603 (bricks) — 23626 (space trap — POKE 16047, 125, Run with 0.000).

PENGION: Infinite lives — POKE 7833, 125.

QUAZIMODO: Lives 16644.

ROBIN HOOD: Lives 15712, Colour 16664.

ROBOTS' REVENGE: Lives 16916, Reset 23794.

Reset: This location should be poked to zero for warm start.

RUBY ROBBIA: POKE 21117, 125 (infinite lives): Lives 33314.

SEA DRAGON: Colour 26589.

SHOCKTROOPER: Poke 17675, 126 (infinite lives).

Pause game, Press SHIFT/Intruder R then SHIFTS to make yourself invulnerable to bullets.

SPACE RAIDERS: CLOAKIN *** 32000: POKE 32184, 57 EXEC 32168 POKE 2364, lives (up to 45): EXEC 16384.

SCREAMING ARCADE: Colour 10999 1232 only.

TEATIME: On the sugar cane screen you can't be hit in the top left corner: infinite lives — POKE 16996, 125.

THE LOVE'S CRICKET: Use a Quikshot 11, play computer, bowler as far down as possible, on top left, bowl, gives a full toss at top of off stump.

TURBARY ARMY: Lives 13367, Stage 12265 (146), Reset 12307.

ZARK'S SUN: Lives 16676.

That's all folks. Merry November.

Key

- 0 Blue door
- 1 Red door
- 2 Green door
- 3 Thunder bolt
- 4 Arrow
- 5 Mirror

- 6 Blue key
- 7 Red key
- 8 Green key
- 9 Blue ice ring
- A Red fire ring
- B Green destruction ring

- + Bow
- 3 Sword
- 4 Lance
- 5 Arrow

Fantasy Flight The Map



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Switching joysticks

A simple hardware modification by Stephen Denning

READERS with switching joysticks may be interested in the following simple circuit to enable them to use them with their Dragons. I was able to build it into a Quikshot 1 joystick with only minor PCB modifications for about £1.00. As readers will doubtless be aware, the Dragon joystick ports are read via 8-bit A to D converters which return 64 different values for voltage levels between 0 volts and 5 volts. Dragon joysticks are normally the potentiometer type wired between 0 volts and 5 volts (figure 1) which send a voltage corresponding to the joystick position from the slider of the potentiometer to the relevant joystick input (referred to as JOYSTICK 0 to 3). Most games are programmed for three joystick positions, ie. for JOYSTICK 0 (left, centre and right, which reduces the need for voltage levels to 3, which are 0 volts, 2.5 volts and 5 volts. The 2.5 volts can easily be obtained with a potential divider, and the 0 volts can be obtained by connecting the 2.5 volts to earth with the 'Left' switch, but the 0 volts is marginally more technical.

In figure 2 the potential divider is formed by R1 and R2, whose junction is connected to the JOYSTICK 0 input. The lower end of R2 is connected to the collector of TR2 which is normally held high on by R3. Thus with a centred joystick TR2 collector will be as near to 0 volts as makes no difference and the JOYSTICK 0 input will be at 2.5 volts as R1 and R2 are equal. If the 'Left' switch is closed it earths the JOYSTICK 0 input which then becomes 0 volts. If the 'Right' switch is closed it earths the base of TR2 thus switching it off. The JOYSTICK 0 input is then connected to the 5 volt supply via R4 and is thus effectively 5 volts. R1, R2, R4 and R5 are 5kOhms; R3 and R6 are 4.7kOhms. Any type of NPN general purpose transistor can be used for TR1 and TR2. In the case of the Quikshot 1, there is ample space on the PCB to glue the transistors and resistors on to it and hard wire them as required. This circuit can be used in any switching joystick that has all the switches switching to earth, and can be adapted to work with any other type. Great care should be taken with the wiring as it is possible to short circuit the 5 volt supply in the computer with expensive consequences. Otherwise, a cheque for blind made out to S. Denning and sent with the joystick to me at the above address will cover the cost of parts, return postage and conversion.

This type of joystick is normally suitable for software that requires a proportional input, eg. flight simulators — it does work with Speedrace but makes it a little too forceful circuit 3 and adds a certain brutality to the steering response.

(Editorial note: opening or altering a joystick within its warranty period will normally invalidate the warranty in case of breakdown.)

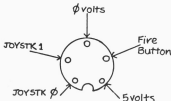


Figure 1 DIN plug seen from rear

Parts list

- R1,2,4,5.....5kOhm resistor
- R3,6.....4.7kOhm resistor
- TR1,2.....any general purpose NPN transistor

Epoxy adhesive,
solder,
fine insulated wire



Figure 2 Standard joystick

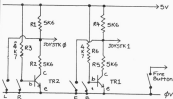


Figure 3 Final circuit of modified joystick

Disc to Tape

Save disc space by backing up your data on cisco.cba says Peter Whittaker

At THE DASH I started using my Oregon with only a slow cassette recorder. I eventually upgraded to a disc drive, which I would now be unable to do without. Unfortunately, discs are a lot more fragile than cassette tapes. Even in the most careful of hands, a disc can fall victim to a cup of coffee or to someone sitting on it. While a cassette tape might survive the event, a disc will be completely destroyed, so disc users are advised to have backup copies of all their discs.

To keep all my data on disc would not require a lot of money, and would be a waste of space. I could use tape. However, the alternative of trying to rack that they all remain undamaged for me is also unappealing. As a solution to the problem, I have written this program to transfer all the contents of a disc to a cassette tape. It takes less than twenty-five minutes of tape to record a forty-track disc, so four discs can be saved on one C90 cassette. This means I can have copies of all my work for much less than a quarter of the cost of the original discs.

These measures are essential. But protecting against

ony, above 1000, and copying the contents of the disc, five blocks at a time, into the protected area. This is then saved to tape as a machine code file. Eight files are required to save an entire disc. Each file has the same name, identifying the disc in common, but a number telling which of the eight files it is. So, a UTILITY.DISC would be named as UTILITY1, UTILITY2, UTILITY3, and so on. To restore a disc, the program runs in reverse. Each file is loaded into protected memory, and then copied back out to the relevant track and sector.

When **RM**, the program displays an option list. Press the **<C>** key, and then place the disc to be saved in the disc drive. Place the cassette in the tape recorder, and set it to record. New type is the disc file, remembering that only the first seven letters will be used. (The last space is used for the file number.) Now go and have a coffee while the program transfers the disc to tape. Whilst it runs, the program will display the Track and Sector number it has reached, at the top of the screen. When the disc has been saved the program will print

message saying so, play a tune, and then return to the options list. Press the **OK** to exit.

When a disc gets damaged, and you want to restore it from tape, run the program and press the [=] key. Insert a disc in the drive, and ready the tape recorder to load the data back in. Type in the name of the files to be loaded, and then go have another cup of coffee while it runs. Once again the program will print the Track and Sector number a has reached, at the top of the screen. When the disc has been reloaded, the program will print a message saying to play a tune, print out the Directory, and they sleep.

Summary Explanation

There is little fancy programming in the routines. The sectors are loaded using one of the disc ROM routines. Simply `POKE 256,DISC TRACKS-39`, `POKE 237,DISC SECTOR-5`, `POKE 238,START/END LOAD ADDRESS`. Then `EXEC 4040` to copy the next 256 bytes to the selected track and sector, or `EXEC 4040` to copy the selected sector down into memory.

```

01 CLER (CL549222,5000
02 PRINT@120 " DISC TO TRANSFER
03 COUNT=PRINT@25....SAVE DISC TO
04 TAPE="PRINT@15....LOAD DISC #
05 FROM TAPE="PRINT@25....QUIT BY
06 00000."
07 GET@TIME
08 IF READ@0 THEN STOP
09 IF READ@0 THEN GO
10 IF READ@0 THEN GO
11 GO TO 25
12 MOTORON.PRINT@PUSHER ON BY 5000
13 GO.....PRINT@PUSHY TAPE TO R
14 5000 DISC.....PRINT@ENTER TIT
15 LE OF DISC TO SAVE "000
16 MOTORON
17 GO 5000000 TO 25 STEP 5
18 FOR COUNT=0 TO 4
19 TRACK=0.DK4-COUNT
20 FOR SECTOR=0 TO 10
21 PKE235,TRK(PKE237,SECTOR
22 LB/2564-COUNT*84256+ SECTOR-1)*8
23 50
24 PKE235,INT(LB/256)*PKE235/LB-
25 PKE235*84256
26 EXEC 49412/LOAD SECTOR FROM DI
27 SC
28 PRINT@25,TRACK="PRINT@PRINT@
29 4,"SECTOR="SECTOR
30 NEXT SECTOR,COUNT
31 WAIT 5000
32 OPEN# 88,5000,22549,41394
33 NEXT SECTOR
34 PRINT@PUSHER ON BY 5000 "0 STEP
35 GO.....PRINT@PUSHY TAPE TO R
36 5000 DISC.....PRINT@ENTER TIT
37 LE OF DISC TO SAVE "000
38 MOTORON
39 GO 5000000 TO 25 STEP 5
40 FOR COUNT=0 TO 4
41 TRACK=0.DK4-COUNT
42 FOR SECTOR=0 TO 10
43 PKE235,TRK(PKE237,SECTOR
44 LB/2564-COUNT*84256+ SECTOR-1)*8
45 50
46 PKE235,INT(LB/256)*PKE235/LB-
47 PKE235*84256
48 EXEC 49412/LOAD SECTOR FROM DI
49 SC
50 PRINT@25,TRACK="PRINT@PRINT@
51 4,"SECTOR="SECTOR
52 NEXT SECTOR,COUNT
53 WAIT 5000
54 OPEN# 88,5000,22549,41394
55 NEXT SECTOR
56 PRINT@PUSHER ON BY 5000 "0 STEP
57 GO.....PRINT@PUSHY TAPE TO R
58 5000 DISC.....PRINT@ENTER TIT
59 LE OF DISC TO SAVE "000
60 MOTORON
61 GO 5000000 TO 25 STEP 5
62 FOR COUNT=0 TO 4
63 TRACK=0.DK4-COUNT
64 FOR SECTOR=0 TO 10
65 PKE235,TRK(PKE237,SECTOR
66 LB/2564-COUNT*84256+ SECTOR-1)*8
67 50
68 PKE235,INT(LB/256)*PKE235/LB-
69 PKE235*84256
70 EXEC 49412/LOAD SECTOR FROM DI
71 SC
72 PRINT@25,TRACK="PRINT@PRINT@
73 4,"SECTOR="SECTOR
74 NEXT SECTOR,COUNT
75 WAIT 5000
76 OPEN# 88,5000,22549,41394
77 NEXT SECTOR
78 PRINT@PUSHER ON BY 5000 "0 STEP
79 GO.....PRINT@PUSHY TAPE TO R
80 5000 DISC.....PRINT@ENTER TIT
81 LE OF DISC TO SAVE "000
82 MOTORON
83 GO 5000000 TO 25 STEP 5
84 FOR COUNT=0 TO 4
85 TRACK=0.DK4-COUNT
86 FOR SECTOR=0 TO 10
87 PKE235,TRK(PKE237,SECTOR
88 LB/2564-COUNT*84256+ SECTOR-1)*8
89 50
90 PKE235,INT(LB/256)*PKE235/LB-
91 PKE235*84256
92 EXEC 49412/LOAD SECTOR FROM DI
93 SC
94 PRINT@25,TRACK="PRINT@PRINT@
95 4,"SECTOR="SECTOR
96 NEXT SECTOR,COUNT
97 WAIT 5000
98 OPEN# 88,5000,22549,41394
99 NEXT SECTOR
100 PRINT@PUSHER ON BY 5000 "0 STEP
101 GO.....PRINT@PUSHY TAPE TO R
102 5000 DISC.....PRINT@ENTER TIT
103 LE OF DISC TO SAVE "000
104 MOTORON
105 GO 5000000 TO 25 STEP 5
106 FOR COUNT=0 TO 4
107 TRACK=0.DK4-COUNT
108 FOR SECTOR=0 TO 10
109 PKE235,TRK(PKE237,SECTOR
110 LB/2564-COUNT*84256+ SECTOR-1)*8
111 50
112 PKE235,INT(LB/256)*PKE235/LB-
113 PKE235*84256
114 EXEC 49412/LOAD SECTOR FROM DI
115 SC
116 PRINT@25,TRACK="PRINT@PRINT@
117 4,"SECTOR="SECTOR
118 NEXT SECTOR,COUNT
119 WAIT 5000
120 OPEN# 88,5000,22549,41394
121 NEXT SECTOR
122 PRINT@PUSHER ON BY 5000 "0 STEP
123 GO.....PRINT@PUSHY TAPE TO R
124 5000 DISC.....PRINT@ENTER TIT
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286 LB/2564-COUNT*84256+ SECTOR-1)*8
287 50
288 PKE235,INT(LB/256)*PKE235/LB
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Text Screen Dump

Mike Hides gets lower case into ASCII and out onto the printer

THE PROGRAM is to dump the contents of the text screen to a printer. The program works by examining the locations 1004 to 1035 and sending the appropriate ASCII code to the printer. The difficulty in writing this program was that the Dragon only stores the uppercase letters in ASCII format. The program can be located anywhere in memory and is executed by using the address of the first instruction (Listing 1).

The program looks at the locations 1004

to 1035 in turn and puts the contents in the A register. If the contents are between 64 and 95 they are sent to the printer unchanged. This is because they are the correct ASCII codes. The JSH 8800F is a ROM routine for sending the contents of the A register to the printer. If the value in A is below 60 the TOLDRH loop adds 96 to its value which produces the correct ASCII code. The TOLDRH loop works in a similar way but subtracts 64 to obtain the correct ASCII

code. The GRAPH loop is a trap for codes which the Dragon uses for block graphic characters which cannot be correctly interpreted by printers. They are converted to ASCII code 32 which produces a SPACE on a printer. The B register is used to check when a line has been completed and sends code 13 to produce a carriage return every 30 characters. The loop BACK decreases the contents of the B register every time a character is sent to the printer.

Listing 1

	BACK	BECH		ADDA	WPA
		CHPB	#0	JSH	8800F
	DRCD	#450	BHE	LOOP	
	LDX	#1024	LDA	#13	TOH1
LINE	LDX	#32	JSH	8800F	BHE
LOOP	LDA	,X+	CHPB	#1528	SUBA
	CHPA	#63	BLE	LINE	JSH
	BLB	TOLDRH	ANDCC	#AAF	BRA
	CHPA	#74	RTS		GRAPH
	BHE	TOH1	TOLDRH	CHPA	#27
	JSH	8800F	BHE	GRAPH	BRA
					BACK

Listing 2 — Basic Loader

10 CLEAR 200,31999	90 DATA EE,EE,0B,BD,00,0F,0C,05
20 FOR N = 32000 TO 32064	100 DATA FF,2F,82,1C,AF,3F,01,1B
30 READ A#	110 DATA 24,12,8B,60,BD,80,0F,20
40 POKE N,VAL("AH"+A#)	120 DATA E3,01,80,24,07,80,40,BD
50 NEXT N	130 DATA 80,0F,20,D8,86,20,80,80
60 DATA 1A,3D,8E,04,05,CA,20,46	140 DATA 0F,3D,01
70 DATA 80,01,2F,23,1F,81,40,24	To save OSAVEH"DUMP",32000,32064,32080
80 DATA 20,BD,80,0F,54,C1,90,24	To initiate the program see EXEC32000.

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MIKE GERRARDS ADVENTURE TRAIL

LAST MONT H (promised you'd get back to dealing with letters, but here I am beginning by breaking my promise. Can you trust me one these days?) Well it's not my fault there have been few interesting and cheap adventures released this month, and I will have space to deal with some of you letters before the end of the column. Promise.

First past the starting gate is **The Thirteenth Task** (just £3 from **Art Software**, 292 Meams Road, Newton Meams, Glasgow G77 5JY). This is definitely one for wingers with ambitions as you get to play the part of Hercules, and don't ask which part. Not content with the fabled Twelve Labours of Hercules, **Art Software** has decided to give you a thirteenth job to do, and that is killing Hades, the ruler of the Underworld. Could be unlucky for some.

Herculean tasks

If you know about Hercules' previous problems then that'll be a help as some of them re-appear, and a knowledge of Greek mythology won't come amiss either. A neat 4-page Atlas is provided with the tape, and author Alan Cook has obviously gone to a lot of trouble to present a decent-looking product, so three cheers for that. This may provide a good introduction, along with some of the notes the game understands, though a full list would be better as some of the others require a little bit of the ordinary. **SLAUGHTER, STRANGLE, LEASH, SLUR** and **THROTTLE**, for example, and these also give you a flavour of the violent nature of the game, though that's just affliction of the violence of Greek mythology itself. Finally, a seven-stone weighing when compared to the ancient Greeks. However, a help sheet and full verb list is available from **Art Software**, and also from myself if you happen to be writing to me.

I promise I didn't look at the sheet when playing the game, though, and I have to say that its main drawback is that it seems to be comparatively easy. At least to begin with, though the problems were getting more complex when I ran out of time and actually had to start writing about the adventure. The game's got 115 locations, and this is made possible by a lot of repetition in the descriptions used. Quite how all those Alpine paths get to intersect I guess I'm not sure. After dealing with a lion in the first location, you wander off and spy a hand...this is what's known as hindsight, I suppose, a useful thing in any adventure.

Finally is, the hand leaves you and runs away, but it can be cornered somewhere and will then earn you a few points. A few weapons are picked up, you encounter the Gorgons (these hags with one tooth between them, like a generic Beverly Sisters), through the Minotaur's maze and out the other side to deal with old favourites like the Hydra, Gorgon, Muses and Cyclops.

The vocabulary supports **LOAD, SAVE, HELP, SAY, EXPLAIN, EXAMINE** and other useful commands, all of which can be abbreviated to the first three letters, although the character set hasn't been redefined so the screen layout is a little pedestrian. But well worth investing. Three quid is, despite my few criticisms.

For £3.95 you can have a copy of **Underbeings** (Out from **Maxidian** at **Beesline Cottage, Handwood Lane, Freshwater, Great Missenden, Bucks HP18 9QG**), and this is also worth pairing with your hard-earned pennies to. This time the character set has been redesigned, and the screen so that the text scrolls up through, appropriately enough, a scroll. Presentation is excellent all round, with dramatic music to accompany the instructions, and this clearly takes when you press **ENTER** to start the game proper.

The story! You have discovered the secret entrance to an underground village, but unfortunately the village's guardians have also discovered you, and you begin the game in an iron cage suspended by a chain above a dark pit from which rather violent rays emerge. Get out of that, as they say. Then make your way to freedom. The first task has that rare balance of difficulty so that makes you a little time is accomplished, it isn't too hard that it puts you off. Just examine everything and think whether some objects might have more than one use.

If you can get out of the narrow location (don't linger down below), you'll be promptly thrown into a cell, and the map around here shows some nice touches of reality as you come across doors that can only be opened from one side, then later on you might find yourself on the other side and have to open the door to pass through. Watch out for the spe-guards, although I haven't yet met the **Boothworms** the cassette cover promises. And I never will, if I don't devise a way of getting the box out of the well without getting myself trapped at the bottom. And now can I get the seal to give up the thing object into the book, especially as

I've told I can't climb trees?

The atmosphere of an underground village is well-evoked, and this game too supports lots of useful commands. Not just **GET, EXAMINE, SAVE, LOAD, SEARCH, SAY** and so on, but multi-inputs if linked by the word **AND**, and the program also understands the word **IT** to refer to the previous object, e.g. **THE BOX AND OPEN IT**. There's a **PROT** option, if your Dragon can cope with the high-speed **PCRE**, and all-in-all this is another for Dragon adventures to add to their Christmas shopping lists.

Entanglements

Some of you, in fact lots of you, have already been shopping for **Tanglewood**, and I've had many letters praising that game, so anyone who's not yet bought it is obviously missing out. Simon 'The Solver' Hargrave has come up with lots of clues, though he hasn't yet managed to finish it completely. To get **Feastly Home**, go to the north-eastern garden, get the spade, then dig in **REDRAB NECTAR** and put what you find in **EDRAB GOD EHT**. To get rid of the ants: **YSABE WORTH**. To get gold coin, see **GRABAB** to **GRAB OFIN EVO** and search for it, but there promise Simon. To make skeletons first **LRAB RROC** in **NEHCTH** **ROAT COO** **COORWOG**.

Simon asked for help on Colossal Cave, where he was unable to get his last treasure, the bear's chain. Just **NRAC TEG**, though you need **BYEK EHT** to do it. Simon's happy to help with this lot of adventures: **Tanglewood, Wizard's Quest, Worms Rattle, Treckon, Justaposition, Ring of Darkness, Return of the Ring, Colossal Cave, Keys of the Wizard, El Diablero, Madhouse and the Minotaur, Frank's Tomb** and **Loop in Space**. Plus some others, he says. The mark is a glutton for punishment, and you can punish him by letter plus I.S.A. to Cranley Hill Farm, Uley, Dursley, Glos. GL8 5BH, by phone on 0453-880381 after 4 p.m. weekdays only, or on Postal million 414444444. Finally he says if there are any other Dragon owners playing the multi-user game, **Shades**, then try to contact him as 'Guthrie' as his needs your help!

Proving that Simons are far from simple comes a letter from Simon Harrison of The Viceroy, 55 Norwich Road, Watton, Thetford, Norfolk IP25 8DS. This one's just polished off Syrry, as well as Dragon's

Mountain and Calais Island. He'll help on those and would love to hear from anyone able to help him solve his biggest problem, which is how to prove his order away from Chuckie Egg so he can use his Dragon again!

Coltbracht of 110 Alpine Rise, Steveston, Georgia, Coventry, West Midlands CV3 6HR needs someone's help as he's having difficulty buying copies of *Pinky Business*, *Latin Space*, *Death Mirror* or *Olney*. If I had a Million and a Million more, anyone willing to sell? He (or maybe she) is prepared to help for the cause, as at Williamsburg, Marston, Foul Causton, Eno, The Golden Baton and The Emperor Must Die.

Looking for openings

Keith Marshall is in danger of losing his sanity, he says, unless someone can tell him how to get a light in The Vortex Factor, open the door in Pyramal of Cocoon, and open the gate in something called 1200. In return he can assist on *Danger Island*, *Mystery of the Jade Star* and *Aqueduct 471*.

Needing help on *Stygge* is Ian Barford, 26 Hartford Road, Stevenage SG2 8BB, and can also ask about the *Adventure Club Ltd*, which I recommended several issues ago. In fact the club seems to have gone out of business, despite giving excellent value-for-money service for over a year, and although there is talk of it getting going again soon I wouldn't suggest anyone send off any money to them for the moment. If you're already a member you'll be aware of the long summer silence, and promises of an autumn return.

If you want to sample the *Adventure Club* club run by Pat Winstanley then you'll only need to ask out 50p for a sample issue of their monthly newsletter. The aim of this club is different, it isn't a helpline but is a means of a forum for adventure writers who want to share ideas and hints. Inevitably this results in a bit of conversation on successful

utilities like *The Gull and Grapnel* *Adventure Creator*, not available to Dragon users, but there are also articles on marketing games, royalties, duplication, cost of cassette covers, and so on. Worth it if you're seriously interested in that side of things.

Stephen Haslam, 4 Bainscraft, Longton, Preston, Lancs PR4 5AL wants help on *Tanglewood*, like how to get the strongman and what sword he can use. And Paul Marsh asks if anyone else is playing some lesser-known adventures, *Horror Castle* and *Pirates Ahoy*. If so, contact Paul at 7 Galswood Crescent, Clifton, Barnsley, Kent TN10 5LQ.

Calling *Tunbridge Wells*, calling *Tunbridge Wells*. Any *Dragon* owners out there? His contact Richard Tyler, 11 Madelon Park, Tunbridge Wells, Kent TN10 5SL. He needs help on *Rings of Darkness*, *Wings of War* and *Jurassic*, particularly as his *SAVELOAD* command isn't working at that location. Anyone know why he might be getting a syntax error when he tries to use it? Richard has finished *Aqueduct 471* and offers help on that one.

More problems of an unadventurous nature, this time on *Castle Adventure* for

Gary Afford, 36 Victoria Road, Fair Oak, Barnstaple, Hants SO5 7TY. His version keeps crashing with an 'OM error' despite using the PCMB 25.6 and NEW commands before loading. Anyone else experienced that problem and, once impartially, solved it?

Mark Bowden's having trouble with *The Sorcerer of Claymague Castle*, and would appreciate help at 73 Edmore Hill, Fareham, Falcot, Hants GU10 2UR, while Philip Ravenscroft wonders how he'll ever defeat Vader in *Stygge*. Philip lives at 40 Cedar Road, Witleham, West Midlands WV13 3DE.

Finally if you've got access to Prestel then you might like to try calling up *The Drag Mag* run by Simon Jones and at present the only Prestel magazine devoted to the *Dragon*. He (yet another Simon) says that there's a large section devoted to adventuring, which recently featured an interview with someone called Mike Gerrard. Now that has to be worth looking at, and can be looked at on page 470/471/481. And if anyone has worked out why so many people called Simon are into *Dragon* adventuring then please let me know as I'm quite baffled.

Adventure Contact

To help puzzled adventurers further, we are instituting an Adventure Helpline — simply fill in the coupon below, stating the name of the adventure, your problem and your name and address, and send it to *Dragon User Adventures Help-*

line, 1203 Little Newport Street, London WC2H 7PP. As soon as enough entries have arrived, we'll start printing them in the magazine.

Don't worry — you'll still have *Adventure* to turn to for help!

Adventure
Problem
.....
Name
Address
.....

Adventure contact

Adventure Calisto Island

Problem I cannot get the puzzles.

Name Simon Kennedy

Address Osprey Park, Newport, Isle of Wight, PO20 2HZ

Adventure 1) *Justposition* 2) *Trekker*

Problem How do I handle the stars?

Name Laura Hodgson

Address 4 Ganton Place, Kilmarnock, Glasgow, Scotland

Adventure 1) *Justposition* 2) *Trekker*

Problem 1) Where is the red castle on? 2) How to stop X's car plant from dying?

Name David Robert

Address Woodtop Farm, Garsington, Preston, Lancs PR4 3EH

Adventure The Crickwood

(no reply)

Problem How do I travel by bus or train?

Name Scott Taylor

Address 14 Pembroke Gardens, Wellesbourne, Warwick CV35 9PP

Adventure 1) *Justposition* 2) *Trekker*

Problem 1) Where is the receiver, sender and deeds of the tower? 2) How do you get past the forest?

Name James Baker

Address 3 Haggard Road, Bangor-On-Dea, Birmingham, CV4 5LW

Adventure Return of the Ring

Problem How do you get the key of the gate in the forest?

Name Wayne Holt

Address 10 Thunderside Road, Bodsworth, Macclesfield, War-wickshire CV12 8BY

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[illegible]

Category	2008	2009	2010
2008	100.0	100.0	100.0
2009	100.0	100.0	100.0
2010	100.0	100.0	100.0

PROPHET 9

[illegible]

EDUCATIONAL CORNER

<p> Programs/Plans (2013) Rate & Dates Refund Policy Financial Information Meeting Notice </p>	<p> \$2,000 cash services for \$2,000 \$2,000 </p>
<p> Request Educational services Let's Connect Program Fee Available Classes Registration </p>	<p> \$2,000 cash services for \$2,000 \$2,000 </p>
<p> Request Financial services Fee to Learn Participating Programs Information Sheets Quick Start Smart Start Simple Choice Simplified / Community Care services Medical Services / Legal Medical Insurance / Mental Health Other Services </p>	<p> \$2,000 cash services for \$2,000 \$2,000 </p>

BATHING IN BASEMENT

[illegible]

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

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